

**Progress Report
Pacific Islands Integrated Ocean Observing System (PacIOOS)
Grant # NA05NOS4731116**

**Submitted by
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December 2007**

1. Project Summary

This report covers the period from June 1, 2007 through November 30, 2007. The development of PacIOOS was initiated through funding from NOAA to the EWC in June 2005. This grant began the formal process of planning for the development of an IOOS program for the Pacific Islands and the Regional Association governance structure that will support it.

Activities during this period addressed the following objectives associated with the emergence of the Pacific IOOS regional program:

- **Ensure broad engagement of key stakeholders and partner institutions** in the development of an initial PacIOOS program with continuing efforts to assess progress, address problems and explore new opportunities;
- **Identify critical information needs** in the high-priority areas described above including completion of an inventory of existing observing systems and information products, the identification of critical gaps and the development of recommendations for new or enhanced ocean information products; and
- **Establish appropriate program oversight, coordination and implementation mechanisms** to support a PacIOOS regional program.

2. Progress on Regional Association Development

Key activities and highlights of accomplishments during this performance period include:

- The EWC and University of Hawaii School of Ocean and Earth Sciences and Technology (UH/SOEST) completed the reprogramming of the PacIOOS development grant to transition the final year from EWC to UH/SOEST leadership. The reprogramming package was approved by NOAA in late-September 2007. A subcontract between the EWC and UH/Office of Research Services (ORS) was completed in mid-October 2007. The EWC retains a co-PI role and will continue to administer the grant. The EWC and UH/SOEST will be PacIOOS representatives on the NFRA Board of Directors. New PacIOOS staff/titles include:
 - Brian Taylor, UH/SOEST, Principal Investigator
 - Margaret McManus, UH/SOEST, Co-Investigator
 - Jim Potemra, UH/SOEST, Co-Investigator

- Daren Okimoto, UH/Sea Grant, Co-Investigator
 - Chris Ostrander, UH/SOEST, Hawaii Coordinator (Hired October 2007)
 - Marcie Grabowski, UH/SOEST, Education and Outreach Coordinator (Hired October 2007)
 - Maria Haws, UH/Sea Grant, Pacific Islands Coordinator
 - Simon Ellis, UH/Sea Grant, Western Pacific Liaison
 - Ephraim Temple, UH/Sea Grant, American Samoa Liaison;
- The UH/SOEST proposal, “Developing the Hawaii-Pacific Ocean Observing and Information System”, was awarded FY 2007 Regional IOOS Development funding and began development September 2007. The project will deliver, in real or near-real time, data and derived products from a suite of in-situ measurements and data-assimilating models that will contribute in making the most informed decisions for general planning, and especially in times of crises or extreme events. The observing system will be comprised of three interrelated components: a) regional and coastal observations, b) modeling, and c) data management and product development. This project is initially a Hawaii-focused ocean observing system that addresses high-priority State needs. It will become a core sub-regional component that can eventually be applied to the larger PacIOOS region;
- PacIOOS representatives attended the 2nd IOOS Regional Coordination Workshop in October 2007. The workshop provided an opportunity to begin and continue discussions with other regional representatives regarding data access, management, and interoperability; standards for metadata and observational data; a consistent terms of reference that covers the range of vocabulary used by the regions in IOOS discussion and; the necessity and format of a conceptual design to guide the development of both regional and national observing efforts in the future;
- PacIOOS representatives attended the final SEACOOS annual meeting in October 2007. The meeting allowed SEACOOS to inform other RA’s of their transition towards a RA under SECOORA. Programmatic materials covering the range of observational, modeling, data management, governance, and education outreach efforts made by the SEACOOS staff during the course of their 5-year funded project were discussed and critically evaluated;
- PacIOOS representatives attended the Pacific Region Data Integration and Visualization workshop in mid-October 2007. The workshop provided an opportunity to explore opportunities associated with the use of technologies, tools and techniques that support data integration and visualization and information sharing. The workshop used specific data integration and visualization activities being conducted in and for the Pacific region to explore opportunities to both enhance Pacific regional work and apply lessons learned in the Pacific to the broader NOAA environmental science and information services responsibilities. Breakout sessions focused on the thematic areas of risk management/hazard resilience, climate/weather, and marine/coastal ecosystems. The discussions

explored forward-looking data technology implementations and user-driven client applications, lessons learned, challenges, and opportunities for collaboration;

- PacIOOS continued to support the work of the Pacific Risk Management Ohana (PRiMO), the NOAA Integrated Data and Environmental Applications (IDEA) Center, and Pacific Disaster Center (PDC) to advance the development of a wave and water level product line as an initial PacIOOS product priority. This work built on a PRiMO sponsored Wave and Water Level Hazards Data Framework workshop that was organized to advance the objective of aligning wave and water level data collection, integration and sharing throughout the Pacific Region. A workshop summary and proceedings can be found at the PacIOOS website (<http://research.eastwestcenter.org/PacIOOS/wwl.html>);
- PacIOOS continued to support development of an initial integrated data product suite on wave and water level including activities in support of the development and implementation of a pilot XML Tide Station Web Service to support tsunami detection and warning (<http://www.pdc.org/pride/ptwc/stations.kml>). Specifically, the NOAA IDEA Center, PDC, and Pacific Tsunami Warning Center (PTWC) staff met with International Oceanographic Data and Information Exchange (IODE) and Global Sea Level Observing System (GLOSS) Intergovernmental Oceanographic Commission (IOC) staff to coordinate ongoing activities related to an XML schema and accompanying client application development in this area;
- PacIOOS continued support for the Pacific Islands Global Ocean Observing System (PI-GOOS) through service on the PI-GOOS steering committee and dialogue and joint planning with the PI-GOOS Program Officer at the South Pacific Applied Geosciences Commission (SOPAC);
- PacIOOS continued support for the Pacific Islands Global Climate Observing System (PI-GCOS) through service on the PI-GCOS steering committee and dialogue and joint planning with the PI-GCOS Program Officer at the Secretariat for the Pacific Regional Environment Programme (SPREP);
- Program status meetings are held as needed with the Technical Program Officer for the PacIOOS development grant. Jaime Carter of NOAA/Pacific Services Center (PSC) assumed this duty from Darcee Killpack in July 2007.

3. Priorities for Observations from a Regional Perspective

- A series of introductory PacIOOS planning meetings were conducted in the American Flag and U.S. Affiliated Pacific Islands including American Samoa, the Republic of the Marshall Islands, the Federated States of Micronesia, Guam, the Commonwealth of the Northern Mariana Islands and the Republic of Palau. These meetings were designed to support the identification of initial PacIOOS priorities in these jurisdictions and facilitate the establishment of a local PacIOOS planning

capability including designation of a PacIOOS liaison in each jurisdiction. These initial PacIOOS discussions were conducted in conjunction with workshop on the Consequences of Climate Variability and Change organized by the EWC through a grant from the NOAA Coastal Services Center (CSC). Summaries of these workshops and introductory PacIOOS meetings have been posted on the Pacific Islands Regional Integrated Science and Assessment (RISA) website (<http://research.eastwestcenter.org/climate/risa/RISA-stakeholders.htm>);

- Participation in the deliberations of the PRiMO Observations and Data Management Hui and discussions with the All Islands Coastal Zone Management group confirmed the importance of the development of enhanced information on wave and water level risks which are being addressed as an initial PacIOOS, PRiMO, and NOAA IDEA Center priorities;
- As noted in previous semi-annual reports, the PacIOOS team believes that one of the highest priorities is the explicit identification of sufficient funding for the Regional Program component of IOOS as well as national backbone funding priorities in Agency budget requests to Congress. This includes, as a high priority, securing legislative and executive branch authorities to move from the current funding situation to a program with sufficient funding for full national coverage in both planning and implementation of regional IOOS programs.

4. Scope of Work for the Next Funding Period

- Begin dialogue on PacIOOS regional and sub-regional governance structures and business plans that will be vetted with identified partners and stakeholders;
- The EWC will plan and host a workshop in Hawaii to determine local IOOS needs and identify and engage stakeholders and partners for PacIOOS in the Hawaiian sub-region;
- PacIOOS Pacific Islands Coordinator and sub-regional liaisons will canvas the Pacific Islands (excluding Hawaii) to determine local contacts, needs and assessments and initiate the process of hiring six Pacific Islands representatives;
- PacIOOS will continue to explore opportunities to link ocean ecosystem observing and data management activities with similar observational and data management interests of the Ocean Biogeographic Information System (OBIS) and Pacific National Ecological Observatory Network (NEON) programs that focus on long-term observations of biological and terrestrial ecosystems. One specific area of shared interest is in meeting the data integration and visualization challenges these related programs face;
- The Pacific Region Integrated Data Products (PRICIP) program brings together recognized experts in the area of climate-related processes that govern storminess and its expression as heavy rains, strong winds, and high seas in the Pacific

region. It serves as a detailed scientific planning forum for a coastal climatologies regional demonstration project to support the emergence of a national coastal climatology program. The wave and water level product development efforts fall under the category of high seas in the context of this broader coastal climatology effort being undertaken by the NOAA IDEA Center in collaboration with PacIOOS and other partners;

- PacIOOS continues to be involved in the development of a Pacific Islands Climate Information System (PaCIS) in the context of identifying and addressing climate-related aspects of Pacific IOOS. A PaCIS program framework describing the integration of climate observations, forecasting, research, research, modeling, assessment, data management and education is currently being developed. In addition to providing regional climate services to American Flag and U.S. Affiliated Pacific Islands, PaCIS is being developed in the context of a U.S. contribution to the emergence of a Regional Climate Centre for Oceania under the auspices of the World Meteorological Organization (RA V).

5. Budget Analysis

- The EWC and UH/SOEST completed the reprogramming of the PacIOOS development grant to transition the final year from EWC to UH/SOEST leadership. The reprogramming package, including a revised budget spreadsheet, was approved by NOAA in late-September 2007. A subcontract between the EWC and the UH/ORS was completed in mid-October 2007;
- A Financial Progress Report for the period April 1, 2007 to September 30, 2007 was submitted by the East-West Center's Financial and Administrative Services.